REMARKS

This Response Accompanying an RCE is intended as a full and complete response to the Final Office Action mailed on September 21, 2004. In view of the amendments and following discussion, the Applicants believe that all claims are in allowable form.

CLAIM 12, 16, 26 and 37

Claims 12, 16 and 37 have been cancelled without prejudice. Claim 26 has been amended to clarify the recited limitations.

CLAIM OBJECTIONS

Claims 30 and 37 stand objected to for informalities. In response, the Applicants have amended claim 30 as suggested by the Examiner. Claim 37 has been cancelled without prejudice as stated above. As such, the Applicants respectfully request that the objection be withdrawn.

CLAIM REJECTIONS

A. 35 U.S.C. §102 Claims 20-22, 25-32 and 35-38

Claims 20-22, 25-32 and 35-38 stand rejected as anticipated by United States Patent No. 4,423,701, issued January 3, 1984 to *Nath et al.*, (hereinafter referred to as "*Nath*"). In response, the Applicants have amended independent claims 20 and 29 to more clearly recite aspects of the invention.

Independent claims 20 and 29, as amended, recited limitations not taught or suggested by *Nath*. Claim 20 recites a deposition chamber is divided into two or more deposition regions that are integrally interconnected to one another, and a wafer support disposed in the deposition chamber and having a horizontal wafer supporting surface. Claim 29 recites a deposition chamber is divided into two or more deposition regions that are integrally interconnected to one another, and a wafer support disposed in the deposition chamber and configured to support the substrate horizontally. As discussed with and agreed by Examiner

Kosowski in an interview with Keith Taboada on December 16, 2004, *Nath* teaches away from a deposition system having a wafer support having a horizontal wafer supporting surface, or configured to support the substrate horizontally, as respectively recited by claims 20 and 29, as amended.

Thus, the Applicants submit that claims 20 and 29, and claims 21-22, 25-28, 30-32 and 35-38, that depend therefrom, are patentable over *Nath*. Accordingly, the Applicants respectfully request that the rejection be withdrawn.

B. 35 U.S.C. §103(a) Claims 1, 3, 5-9 13-15, 17, 19, 40 and 41

Claims 1, 3, 5-9 13-15, 17, 19, 40 and 41 stand rejected as being unpatentable over *Nath* in view of United States Patent No. 6,497,767, issued December 24, 2002 to *Okase et al.* (hereinafter referred to as "*Okase*"). The Applicants respectfully disagree.

Independent claims 1 and 17 recites limitations not taught, shown or suggested by *Nath* and *Okase*. As discussed above, *Nath* teaches away from processing substrates in a horizontal orientation. Therefore, a substrate support that maintains a substrate in a horizontal plane to facilitate movement of the substrate between the upper end (for processing) and the lower end (for transfer) as taught by *Okase* may not be combined with *Nath* to teach a wafer support disposed in the deposition chamber, wherein the wafer support is vertically moveable between the two or more interconnected deposition regions defined in the deposition chamber, as recited by claims 1 and 17. Examiner Kosowski, in the December 16 interview with Keith Taboada, agreed that *Nath* and *Okase* may not be properly combined in a manner to obviate the claimed invention.

Thus, the Applicants submit that claims 1 and 17, and claims 3, 5-9 13-15, 19, 40 and 41, that depend therefrom, are patentable over *Nath* in view of *Okase*. Accordingly, the Applicants respectfully request that the rejection be withdrawn.

C. 35 U.S.C. §103(a) Claims 2

Claim 2 stands rejected as being unpatentable over *Nath* and *Okase*, in further view of U.S. Patent No. 5,518,542, issued May 21, 1996 to *Matsukawa et al.* (hereinafter referred to as "*Matsukawa*"). The Applicants respectfully disagree.

As discussed above, Independent claim 1, from which claim 2 depends, recites limitations not taught, shown or suggested by the combination of *Nath*, *Okase* and *Matsukawa*. The patentability of claim 1 over *Nath* and *Okase* has been discussed above. *Matsukawa* teaches a wafer cleaning apparatus having a wafer support that is vertically moveable by a piston. Thus, utilizing a piston as taught by *Matsukawa* in the elevator of *Okase* to modify the deposition system of *Nath* fails to teach or suggest a deposition chamber having a wafer support disposed therein that is vertically moveable between two or more interconnected deposition regions, as recited by claim 1.

Thus, the Applicants submit that claim 2, that depends from independent claim 1, is patentable over *Nath* in view *Okase*, and in further view of *Matsukawa*. Accordingly, the Applicants respectfully request that the rejection be withdrawn.

D. 35 U.S.C. §103(a) Claim 4

Claim 4 stands rejected as being unpatentable over *Nath* in view *Okase*, and in further view of U.S. Patent No. 6,387,185, issued May 14, 2002 to *Doering et al.* (hereinafter referred to as "*Doering*"). The Applicants respectfully disagree.

Independent claim 1, from which claim 4 depends, recites limitations not taught, shown or suggested by the combination of *Nath*, *Okase* and *Doering*. The patentability of claim 1 over *Nath* and *Okase* has been discussed above. *Doering* teaches an atomic layer deposition chamber in which an electrostatic chuck may be used to support a semiconductor wafer during processing. *Doering* does not teach or suggest processing a substrate in separate regions of a deposition chamber. Thus, utilizing an electrostatic chuck as taught by *Doering* to modify the deposition system of *Nath* and *Okase* fails to teach or suggest a deposition chamber having a wafer support disposed therein that is vertically

moveable between two or more interconnected deposition regions, as recited by claim 1.

Thus, the Applicants submit that claim 4, that depends from independent claim 1, is patentable over *Nath* in view *Okase*, and in further view of *Doering*. Accordingly, the Applicants respectfully request that the rejection be withdrawn.

E. 35 U.S.C. §103(a) Claim 18

Claim 18 stands rejected as being unpatentable over *Nath* in view *Okase*, in further view of U.S. Patent No. 5,916,365 issued June 29, 1999 to *Sherman* (hereinafter referred to as "*Sherman*"). The Applicants respectfully disagree.

Independent claim 17, from which claim 18 depends, recites limitations not taught, shown or suggested by the combination of *Nath*, *Okase* and *Sherman*. The patentability of claim 17 over *Nath* and *Okase* has been discussed above. *Sherman* teaches an apparatus for sequential chemical vapor deposition by forming a first monolayer using a first reactant gas, then providing a second reactant gas that may react with the monolayer. This cycle may be repeated to grow a desired thickness of the film. *Sherman* performs this process of cycle exposure of the substrate to the first and second reactant gases in a single deposition chamber.

There is no suggestion to perform a portion of the cycle taught by *Sherman* in separate deposition regions. Furthermore, neither *Nath*, *Okase* nor *Sherman* teach or suggest elevating a wafer positioned on a substrate support to move between deposition regions. Thus, performing the cyclic process of forming a monolayer (and growing the monolayer to a desired film thickness) as taught by *Sherman* in the deposition system of *Nath* and *Okase* fails to teach or suggest method that includes elevating a wafer positioned on a substrate support from a first deposition region to the second deposition region, as recited by claim 17.

Thus, the Applicants submit that claim 18, that depends from independent claim 17, is patentable over *Nath* in view *Okase*, and in further view of *Sherman*. Accordingly, the Applicants respectfully request that the rejection to this claim be withdrawn.

F. 35 U.S.C. §103(a) Claims 10-13 and 16

Claims 10-13 and 16 stand rejected as being unpatentable over *Sherman* in view of *Nath*, and in further view of *Okase*. As noted above, claim 16 has been cancelled without prejudice. With regards to claims 10-13, the Applicants respectfully disagree.

Independent claims 10-11 recites limitations not taught, shown or suggested by the combination of *Sherman*, *Nath* and *Okase*. As discussed above, there is no teaching or suggestion from the combination of *Sherman*, *Nath* and *Okase* for changing the elevation of the substrate support to transport a wafer between deposition regions, or to provide computer readable medium containing instructions for the same, as respectively recited by claims 10-11. Thus, performing the cyclic process of forming a monolayer (and growing the monolayer to a desired film thickness) as taught by *Sherman* in the deposition system of *Nath* and *Okase* fails to teach or suggest method that includes changing an elevation of a wafer support to transport a substrate thereon between first and second deposition regions, as recited by claim 10, or computer storage medium for instructing a process chamber to perform a deposition process that includes changing the elevation of a wafer support between deposition regions, as recited by claim 11.

Thus, the Applicants submit that independent claims 10-11, and claims 12-13 depending thereon, are patentable over *Sherman* in view of *Nath*, and in further view of *Okase*. Accordingly, the Applicants respectfully request that the rejection to these claims be withdrawn.

G. **35 U.S.C. §103(a) Claims 23-24, 33-34 and 39**

Claims 23-24, 33-34 and 39 stand rejected stands rejected as being unpatentable over *Nath* in view of *Sherman*. The Applicants respectfully disagree.

Independent claims 20 and 29 recite limitations not taught, shown or suggested by the combination of *Nath* and *Sherman*. As discussed above, *Nath* teaches away from a deposition system having a wafer support having a horizontal wafer supporting surface, or configured to support the substrate horizontally, as respectively recited by claims 20 and 29, as amended. Thus, performance of the cycle taught by *Sherman* in a system suggested by *Nath* cannot render claims 20 and 29 obvious.

Thus, the Applicants submit that claims 23-24, 33-34 and 39, that depend from claims 20 and 29, are patentable over *Nath* in view of *Sherman*. Accordingly, the Applicants respectfully request that the rejection to these claims be withdrawn.

NEW CLAIMS

New claims 42-50 have been added. The Applicants believe that these claims are fully supported by the specification and that no new matter has been entered. The Applicants additionally submit that new claims 42-50 are patentable over the references of record, and respectfully request allowance of these claims.

CONCLUSION

Thus, the Applicants submit that all claims now pending are in condition for allowance. Accordingly, both reconsideration of this application and swift passage to issue are earnestly solicited.

If the Examiner believes that any unresolved issues still exist, it is requested that the Examiner telephone Keith Taboada at (732) 530-9404 so that appropriate arrangements can be made for resolving such issues as expeditiously as possible.

Respectfully submitted,

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Date

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CERTIFICATE OF TRANSMISSION UNDER 37 C.F.R. 1.8

I hereby certify that this correspondence is being transmitted by facsimile under 37 C.F.R. §1.8 on December 21, 2004, and is addressed to Mail Stop RCE, Commissioner for Patents, P.O. Box 1450, Alexandria, VA 22313-1450. Facsimile No.: (703) 872-9306.

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12-21-04
Date of signature